

Lelegumes Popia Begedil

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Abstract: Original begedil is made from meat or chicken paste, eggs, and seasoning. This innovative product known as lelegumes popia begedil is different compared to the original recipe as the main purpose of this product made, is to diversify and enrich the usage of second-class protein based which is known as chickpeas and lentils. Another objective of producing this product is to promote and market this product as ready-to-eat food as it is pre-cooked food and easy to be prepared as it takes less than 1 minute to reheat by using a microwave oven or deep-frying method. The production of the product started with the preparation of the popia skin using treated 2 different lentil powder batters. The batter is cooked using a non-stick pan. Then the process of the popia filling will take a place, and a mixture of the boiled chickpeas, minced chicken, eggs as a binding agent, and seasoning will be mixed in the thermomixer. Then the well-blended mixture will be added with a variety of vegetables and folded in the popia skins. Later the popia will pre-fry for a few minutes, toss, and pack in the vacuum packaging. A pair comparison test was conducted (N= 60 panels) using Microsoft Excell 2016 with the least and the most indicator. Six attributes were evaluated such as aroma, color, texture, crispiness, flavor, and overall acceptability. The result of the test shows that most of the panel preferred Variation 2 (V2) begedil with red lentil popia skin with 34 panels compared to variation 1 (V1) begedil with yellow lentil popia skin with 26 panels.

Keywords: legumes, second-class protein, ready-to-eat food



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1. INTRODUCTION

This innovative product known as lelegumes popia begedil is unique and different compared to the existing product as second-class legumes protein such as lentils and chickpeas were used in producing the product. Legumes have been an important source of quality protein in the human diet for hundreds of years. They are inexpensive, universally available, and used as food by nearly all people worldwide (Richard et al., 2021). In Europe and Near East countries legumes are classified as the poor man's meat" whereas poor people could afford to buy and replace animal-source protein in their diets (Richard et al., 2021).

Besides that, the rising number of urban population and dual-income families has increased the demand for products and services, particularly products that are convenient, healthy, full of diet, and affordable in price. More importantly, convenient food especially frozen food is made available in the hypermarket and supermarkets near the consumer. It replaces the traditional ways of cooking food with those that are hassle-free, fast, and convenient. The rapid trends in living style have changed consumer behavior, especially in their eating habits (Ismah et al., 2012). As aforesaid mentioned the purpose of this product is to produce ready-to-eat food products specifically frozen spring rolls stuffed with chickpeas begedil and to diversify and enrich the usage of second-class protein; lentils and chickpeas.

Spring rolls are thought to have originated in Southern Vietnam. The term spring roll has been reinvented and modified by everyone, from spring roll to egg roll and summer roll (Juleeho, 2020). Spring rolls are produced by wrapping a variety of fillings in a pastry and then steaming or frying the finished product (Mcmahon, 2022).

2. MATERIAL & METHOD

2.1 Materials

Ingredients for lelegumes popia begedil such as red lentils, yellow lentils, chickpeas, fried, chili, ground beef, white pepper, parsley, broccoli, carrot, and soybean were provided by the kitchen, Faculty of Hotel and Tourism Management, University Technology Mara Terengganu Branch, Dungun Campus. While other ingredients, such as flour, salt, oil, onion, and garlic, were obtained from the pastry kitchen.

2.2 Red lentil

100g of red lentils are toasted and ground till they turn to flour using a thermomixer, and then mixed with 300g of flour with 4 tsp salt. After that, add water (1.3 liters) and then mix well until there are no lumps. Then, the red lentil flour mixture was cooked on an elastic pan until it became popia skin. Lastly, wait a while for the popia skin to cool.

2.3 Yellow lentil

200g of yellow lentils are toasted and ground till they turn to flour using a thermomixer, and then mixed with 200g of flour with 4 tsp salt. After that, add water (1.3 liters) and then mix well until there are no lumps. Then, the red lentil flour mixture was cooked on an elastic pan until it became popia skin. Lastly, wait a while for the popia skin to become cool.

2.4 Begedil making

500g of chickpeas are boiled at 190°C for 2 hours and then put in a thermomixer with 2 numbers of eggs to make a paste. Then fry the minced meat and mix it with the chickpeas paste. Then combine ¼ cup of fried onions, 2 numbers of sliced chilli, ½ tsp salt, ½ tsp white pepper, 8g soup leaves, and 9g of broccoli.

2.5 “Sambal kicap”

Fried the chili, garlic, and onion until golden brown, then blend with $\frac{1}{4}$ cup soy sauce in a blender. Then mix it with a pinch of salt and 1 tbsp of sugar. Finally, blend them.

3. FINDINGS

3.1 Sensory evaluation

The sensory evaluation aims to identify the acceptance of customers towards the product's attributes. Five product attributes have been evaluated comprising aroma, color, crispiness, flavor, and overall acceptance. Sixty (60) panelists from different backgrounds of the study were used and the samples were coded with a three-digit sample code and arranged based on permutation number to avoid bias. One hundred and twenty (120) samples were used for this sensory evaluation. The samples Variation 1 (V1; yellow lentil flour batter for popia skin) and Variation 2 (V2; red lentil flour batter for popia skin) were tested.

Based on Figure 1, the finding of paired comparison test on overall acceptance indicates most of the panels preferred Variation 2 with 34 panels (V2; red lentil flour batter for popia skin) compared to Variation 1 with 26 panels (V1; yellow lentil flour batter for popia skin). This is due to Variation 2 being more flavored and crispier compared to Variation 1.

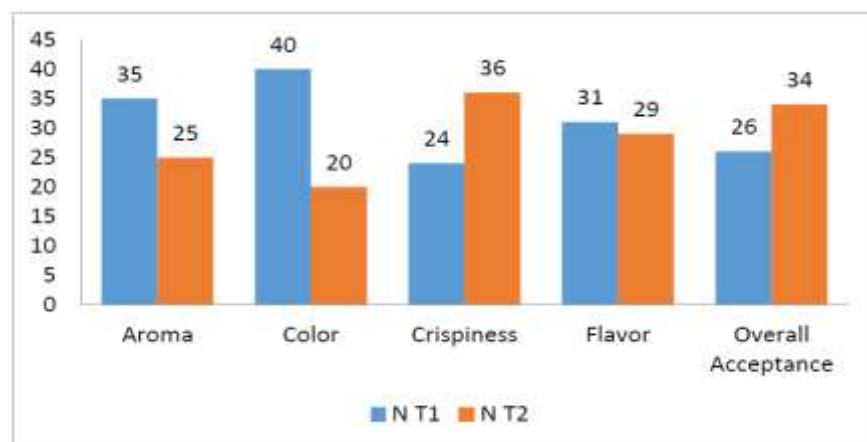


Figure 1. Sensory Evaluation Result Among Panel

4. DISCUSSION

4.1 Product design and packaging

The packaging of the product is designed as transparent so that consumers can see the product's size, shape, color, and intricate details. The design of the package may also be changed into various similar designs of different sizes making it versatile packaging. The characteristics of the products are pre-cooked, frozen, and ready to eat by a simple reheating process using a microwave oven or deep fat fryer in less than 1 minute.



Figure 2. Illustration of Product Packaging

5. CONCLUSION

The usage of lentils in making popia skins and chickpeas in making bergedil filling is expected to increase the value of second-class protein in producing local snacks. Moreover, using chickpeas gives a variety of nutrients such as vitamins, minerals, and fiber compared to existing popia in the market (Richard et al., 2021). An innovative local product ingredient can be diversified, marketed, and commercialized also can make the product different and unique in the market. This popia bergedil is easy to be prepared as it is a precooked, and well-treated ingredient able to preserve the shelf life of the product.

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References

- Ismah, O., Suriati, O., Imani, Mokhtar., Fatima, S., Samsul, A.M.S., & Zawawi, T. (2012). Family food consumption: desire towards convenient food products. *International Halal Conference (INHAC) [Conference proceedings]* 223- 231.
- Juleeho. (2020, February 20). History of spring rolls. Juleeho Media. <https://juleeho.com/foodhistory-101-blog/history-of-spring-rolls>.
- Mcmahon, M. (2022, November 11). What are spring rolls?. DelightedCooking. <https://www.delightedcooking.com/what-are-spring-rolls.htm>
- Richard, D.S., Rebecca, R., Nihaal, R., Klaus, K., & Martin, W. B. (2021). Legumes as a sustainable source of protein in human diet. *Journal Global Food Security*, 28, 1-4.